

WHAT IS CLAIMED IS:

1. An information processing apparatus comprising:
acquisition means for acquiring an input
coordinate sequence generated by sampling a handwritten
5 input pattern at predetermined intervals;

line segment conversion means for converting a
pattern expressed by the input coordinate sequence into
line segments by approximating the pattern by coupling
a plurality of line segments;

10 generation means for generating angle
distribution data on the basis of directions of the
line segments obtained by said line segment conversion
means; and

matching means for executing a matching process
15 of a pattern on the basis of the angle distribution
data generated by said generation means.

2. The apparatus according to claim 1, further
comprising:

registration means for registering a standard
20 pattern on the basis of the angle distribution data
generated by said generation means, and

wherein said matching means discriminates
similarity of the handwritten input pattern using the
data registered by said registration means.

25 3. The apparatus according to claim-1, wherein said
generation means comprises:

setting means for setting as a reference line a line segment having a predetermined angle with respect to a horizontal direction on the basis of the input coordinate sequence, and

5 said generation means generates the angle distribution data by calculating angles the respective line segments obtained by said line segment conversion means make with the reference line.

4. The apparatus according to claim 3, wherein said
10 setting means sets a line segment that connects start and end coordinates of the input coordinate sequence as the reference line.

5. The apparatus according to claim 3, wherein said
15 generation means generates the angle distribution data on the basis of angles division positions make with the reference line, the division positions being obtained by equally dividing a total line segment length as a sum of lengths along line segments of all line segments obtained by said line segment conversion means.

20 6. The apparatus according to claim 1, wherein said registration means registers angle distribution data defined by average angles at respective positions of a plurality of angle distribution data obtained from a plurality of input coordinate sequences.

25 7. The apparatus according to claim 1, wherein said acquisition means acquires an input coordinate sequence using a digitizer.

8. The apparatus according to claim 1, wherein said registration means comprises:

indeterminate region extraction means for
extracting portions where deviations of distribution
5 values exceed a predetermined value from a plurality of
angle distribution data obtained for a plurality of
input coordinate sequences as indeterminate regions;
and

angle distribution data generation means for
10 generating standard angle distribution data based on
the plurality of angle distribution data, and

said registration means registers as the standard
pattern information indicating the indeterminate
regions extracted by said indeterminate region
15 extraction means and the standard angle distribution
data.

9. The apparatus according to claim 8, wherein said
matching means discriminates similarity with a
handwritten input pattern using the angle distribution
20 data registered by said registration means except for
the indeterminate regions.

10. The apparatus according to claim 8, wherein said
angle distribution data generation means generates
standard angle distribution data using average values
25 of angle distribution values in the plurality of angle
distribution data.

11. An information processing method comprising:

the acquisition step of acquiring an input coordinate sequence generated by sampling a handwritten input pattern at predetermined intervals;

5 the line segment conversion step of converting a pattern expressed by the input coordinate sequence into line segments by approximating the pattern by coupling a plurality of line segments;

10 the generation step of generating angle distribution data on the basis of directions of the line segments obtained in the line segment conversion step; and

the matching step of executing a matching process of a pattern on the basis of the angle distribution data generated in the generation step.

15 12. The method according to claim 11, further comprising:

the registration step of registering a standard pattern on the basis of the angle distribution data generated in the generation step, and

20 wherein the matching step includes the step of discriminating similarity of the handwritten input pattern using the data registered in the registration step.

13. The method according to claim 11, wherein the generation step comprises:

25 the setting step of setting as a reference line a line segment having a predetermined angle with respect

to a horizontal direction on the basis of the input coordinate sequence, and

the generation step includes the step of generating the angle distribution data by calculating
5 angles the respective line segments obtained in the line segment conversion step make with the reference line.

14. The method according to claim 13, wherein the setting step includes the step of setting a line
10 segment that connects start and end coordinates of the input coordinate sequence as the reference line.

15. The method according to claim 13, wherein the generation step includes the step of generating the angle distribution data on the basis of angles division
15 positions make with the reference line, the division positions being obtained by equally dividing a total line segment length as a sum of lengths along line segments of all line segments obtained in the line segment conversion step.

20 16. The method according to claim 11, wherein the registration step includes the step of registering angle distribution data defined by average angles at respective positions of a plurality of angle distribution data obtained from a plurality of input
25 coordinate sequences.

17. The method according to claim 11, wherein the acquisition step includes the step of acquiring an input coordinate sequence using a digitizer.

18. The method according to claim 11, wherein the
5 registration step comprises:

the indeterminate region extraction step of extracting portions where deviations of distribution values exceed a predetermined value from a plurality of angle distribution data obtained for a plurality of
10 input coordinate sequences as indeterminate regions; and

the angle distribution data generation step of generating standard angle distribution data based on the plurality of angle distribution data, and

15 the registration step includes the step of registering as the standard pattern information indicating the indeterminate regions extracted in the indeterminate region extraction step and the standard angle distribution data.

20 19. The method according to claim 18, wherein the matching step includes the step of discriminating similarity with a handwritten input pattern using the angle distribution data registered in the registration step except for the indeterminate regions.

25 20. The method according to claim 18, wherein the angle distribution data generation step includes the step of generating standard angle distribution data

using average values of angle distribution values in the plurality of angle distribution data.

21. A storage medium that stores a control program for making a computer implement a method cited in claim

5 11.

22. A computer program that comprises program codes for making a computer implement a method cited in claim 11.